THE QUILT PROJECT
Deb Simpson - Year 3 teacher, Ashburton Primary School

Planning a design on triangular grid paper.

The Quilt Project is designed to be used at the start of the new school year, as a way of helping students to get to know new classmates while introducing them to measurement and geometry concepts and skills. It also sets the scene for a maths program that values collaboration, hands on maths, the use of clear, specific mathematical language and an emphasis on problem solving.

My teaching team has used this project with students from Years 3 to 6. With Years 5 and 6, the main focus is on measuring and drawing angles. With Years 3 and 4, the focus is on identifying the attributes of polygons and naming them, while investigating symmetry and tessellation.

INTRODUCING THE PROJECT

The project is introduced by looking at pictures of quilts, as well as some real quilts - children love to bring their own quilts from home to show. Children are paired with someone they might not usually work with, for example, a Year 6 child with a Year 5 child. Each student is given a quilt rubric. The shapes used in this project are the yellow hexagon, the red trapezium, the green equilateral triangle and the blue rhombus found in pattern blocks.

EXPLORING

In pairs, the children play with real and virtual pattern blocks, experimenting with tessellation. Walking around, chatting to groups as they work, we have found that children discover, incidentally, the fractional relationships of the blocks. This can become a focus for future maths learning.

There are several good websites with virtual pattern blocks; my favourite is the National Library of Virtual Manipulatives. Here is a selection:

http://nlvm.usu.edu/en/nav/category_g_1_t_3.html

www.mathplayground.com/patternblocks.html

http://illuminations.nctm.org/Activity.aspx?id=3577

www.mathsisfun.com/geometry/protractor-using.html

www.abcya.com/measuring_angles.htm

Quilts are assembled following their plans and designs can be modified if necessary.

REFLECTING

When the quilts are completed and displayed in a gallery along the classroom wall, visitors are invited to visit and view the finished products. They are encouraged to ask questions and the children have to justify their answers with mathematical language. For example, 'How do you know that is a
regular hexagon? would be answered with, "Because it has six equal sides and each interior angle measures 120°." (Years 5 and 6) or, 'Because it has six straight sides and the angles and sides are all equal,' (Years 3 and 4).

At the end of the project, students self assess and reflect on what they have learnt about polygons, angles, design, modifying designs, mathematical language and working collaboratively. The teacher completes an assessment rubric.

The children love this project and are very proud of their quilts; in fact, many choose to make extra quilts at home. It's a great way for children to explore ideas, use mathematical language naturally and develop their problem-solving skills collaboratively. It also gives teachers the opportunity to observe the strategies and qualities their students apply to maths tasks. It is non threatening, there is no right and wrong in this project; all students achieve success and produce something they can be proud of.
THE QUILT PROJECT RUBRIC

In groups, students designed and made a paper polygon quilt. This project involved:

- creating an original design
- using compasses and protractors to construct polygons
- putting the polygons together to create the design.

<table>
<thead>
<tr>
<th>FOCUS</th>
<th>😞</th>
<th>😐</th>
<th>😊</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>The design was not attractive or original.</td>
<td>The design was either attractive or original.</td>
<td>The design was attractive and original.</td>
</tr>
<tr>
<td>Angles</td>
<td>The angles were not accurately drawn.</td>
<td>Most angles were accurately drawn.</td>
<td>All angles were accurately drawn.</td>
</tr>
<tr>
<td>Polygon</td>
<td>The polygons did not fit together very well.</td>
<td>The polygons fitted together quite well.</td>
<td>The polygons fitted together perfectly.</td>
</tr>
<tr>
<td>Team work</td>
<td>The partners did not work very well together.</td>
<td>The partners worked quite well together.</td>
<td>The partners worked very co-operatively.</td>
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</tbody>
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TEACHER COMMENTS